



**Fw: Ft Gillem Summary of Site Conditions**

Don Rigger to: Jan Simmons

02/12/2013 08:51 AM

From: Don Rigger/R4/USEPA/US  
To: Jan Simmons <Jan.Simmons@dnr.state.ga.us>

Jan - here is the memo we got from our Technical Services Section. Let me know if any questions or you wish to discuss. I understand our RA spoke with the OSWER AA last week, but we don't know how that went. Also understand a meeting between EPA, GEPA and the Army is in the works, but we have no specific info. Do you? Thanks

Don

R. Donald Rigger  
Chief, Superfund Remedial and Site Evaluation Branch  
EPA Region 4; 61 Forsyth St.; Atlanta, GA 30303

404/562-8744 (voice)

----- Forwarded by Don Rigger/R4/USEPA/US on 02/12/2013 08:49 AM -----

From: Glenn Adams/R4/USEPA/US  
To: Bill Denman/R4/USEPA/US@EPA  
Cc: Don Rigger/R4/USEPA/US@EPA, Franklin Hill/R4/USEPA/US@EPA, Randall Chaffins/R4/USEPA/US@EPA  
Date: 02/11/2013 12:59 PM  
Subject: Re: Fw: Ft Gillem Summary of Site Conditions

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here is the final version.  
Glenn



Ft Gillem TSS recommendations and Summary of Site Conditions 2-8-13.pdf

Glenn Adams, Chief  
Technical Services Section  
Superfund Division  
US EPA Region 4  
Atlanta, GA  
404-562-8771 (office)

Bill Denman

Franklin/Randall, I'm forwarding Ben's memo as...

02/11/2013 12:55:54 PM

From: Bill Denman/R4/USEPA/US  
To: Randall Chaffins/R4/USEPA/US@EPA, Franklin Hill/R4/USEPA/US@EPA,  
Cc: Don Rigger/R4/USEPA/US@EPA, Glenn Adams/R4/USEPA/US@EPA  
Date: 02/11/2013 12:55 PM  
Subject: Fw: Ft Gillem Summary of Site Conditions

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Franklin/Randall,

I'm forwarding Ben's memo as requested.

Bill

----- Forwarded by Bill Denman/R4/USEPA/US on 02/11/2013 12:54 PM -----

From: Ben Bentkowski/R4/USEPA/US  
To: Glenn Adams/R4/USEPA/US@EPA, Don Rigger/R4/USEPA/US@EPA, Cathy Amoroso/R4/USEPA/US@EPA, Bill Denman/R4/USEPA/US@EPA  
Date: 02/08/2013 02:42 PM  
Subject: Ft Gillem Summary of Site Conditions

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Glenn, et.al.  
See attached.

Ben  
[attachment "Ft Gillem TSS recommendations and Summary of Site Conditions 2-8-13.docx" deleted by  
Glenn Adams/R4/USEPA/US]

Ben Bentkowski, P.G.  
USEPA Region 4  
61 Forsyth Street SW  
Atlanta GA 30303  
404-562-8507 Office

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY



REGION 4

61 Forsyth Street

Atlanta, Georgia 30303

MEMORANDUM

DATE: February 8, 2013

Subject: TSS Recommendations for Investigation

Fort Gillem, Forest Park, Georgia

To: Don Rigger, Chief

Superfund Remedial and Site Evaluation Branch

From: Glenn Adams, Chief

Technical Services Section

Superfund Support Branch

A handwritten signature in black ink, appearing to read "HAA", is written over the text "Technical Services Section".

As per your request, the Technical Services Section (TSS) has reviewed the site data provided by your Remedial Project Manager for the Fort Gillem site. We were requested to review the data in relation to off-site ground water and/or surface water migration, to model any potential vapor intrusion (VI) issues and to provide you with any recommendations for additional investigative work that may be currently needed.

Ben Bentkowski, one of my staff hydrologist, has reviewed the data and performed a modeling exercise with the information to predict the potential risks/hazards that could be associated with the volatile organic contamination (VOC) in the groundwater that has migrated off the Fort Gillem property. Summary of Site Conditions based on that review is attached. Based on this summary, the following recommendations.

1. The shallow groundwater in the areas of FtG09 (south side of the post) and FtF01 (north side of the post) both have off-site wells shallow enough for modeling for potential VI issues. Both areas indicate a need for a VI investigation to be conducted. The priority based on the risk/hazard levels and the size of the VOC plume would be in the area of FtG09.
2. There is definite evidence of off-site groundwater migration of VOCs with some being at very high concentrations. Further investigation/characterization of this off-site migration is needed. This groundwater contamination also appears to be discharging to a couple of nearby surface



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water bodies based on some of the surface water data available. This investigation/characterization of surface water contamination should be continued.

3. Given the high levels of VOC contamination in off-site groundwater, a private well survey should be conducted to confirm that all homes are supplied municipal drinking water and some type of institutional controls should be implemented to reduce the potential that contaminated groundwater is used as a source of drinking water.
4. TSS also looked at the current groundwater mitigation that is underway. Further extraction and treatment systems is needed. It appears that high levels of trichloroethylene contaminated groundwater is not currently being addressed.

Please review this memo and the following Summary of Site Conditions at Fort Gillem and let me know if you have any questions. Ben Bentkowski can be reached at 404-229-8507 or I can be reached at 404-229-562-8771.



## INTRODUCTION

Fort Gillem is located on the south side of Atlanta outside of I-285 and between I-75 and I-675 in Clayton County, GA. Environmental investigations have been ongoing at this former Army post for approximately 30 years. This Summary of Site Conditions will focus on the largest known contamination areas; the north landfill and the south disposal sites. These historical disposal activities have resulted in significant on post and off post contamination of the groundwater and surface water and have created a potential vapor intrusion pathway to off post residences. This summary is not intended to be all inclusive. The area known as the Enclave is still under active Army control and is not covered in the reports reviewed for this short report. There are other minor areas of concern in the eastern portion of the post that will not be covered in this summary, such as the National Guard disposal area. The focus is on the most recent data which is aided by the Performance Monitoring Reports for FTG-01 and FTG09 dated December 2012. Estimated risks have been calculated with the most recent data. There may be unacceptable risk in the past but that is not the focus of this summary.

### FTG09 Data Summary (south side of post)

FTG09 Vapor Intrusion Risk derived from groundwater data, 3<sup>rd</sup> Quarter Performance Report, December 2012, concentrations in µg/L

VI risk calculator used found at [http://www.epa.gov/athens/learn2model/part-two/onsite/JnE\\_lite\\_forward.html](http://www.epa.gov/athens/learn2model/part-two/onsite/JnE_lite_forward.html) Avg. Temp 63.5°

Well Name	Depth to Water	1,1,2,2-TeCA conc	1,1,2,2-TeCA risk/HQ	TCE conc	TCE risk/HQ	cis-DCE conc	cis-DCE risk/HQ	Vinyl Chloride conc	Vinyl chloride risk/HQ	Cumulative risk	Cumulative HQ
BSOSPZ001	18.6	1,400	1.3e-4 /0.03	1,300	<b>6.0e-3</b> /3.3	530	0/0.61	110	<b>1.6e-4</b> /0.48	<b>6.3e-3</b>	<b>3.81</b>
BSOSMW05	10.6	9.9	1.1e-6 /2e-4	2.0	1.1e-5 /5e-3	ND		ND		1.2e-5	5.2e-3

1,1,2,2-Tetrachloroethane - 1,1,2,2-TeCA, Trichloroethane – TCE, cis-1,2-Dichloroethane – cis-DCE, Hazard Quotient - HQ

In this area, at an average depth of 19.5', for TCE concentration of 22 µg/L, risk is 1e-4. For 1,1,2,2-TeCA concentration of 1,065 µg/L, risk is 1e-4





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The largest portion of the risk is due to TCE. The majority of the plume coverage is off post in the residential area to the south. There are only two monitoring wells which are suitable (shallow enough) for vapor intrusion evaluation. There is historical soil gas data for the residential area south of the post. These details are presented elsewhere.

There is an additional off post smaller residential area associated with FTG07 and it is located north of Joy Lake. In a 2001 Summary of Findings report, groundwater screening results indicate TCE as high as 52.1. This concentration is likely to generate unacceptable risk for the vapor intrusion pathway. 1,1,2,2-TeCA screening results are as high as 128 µg/L in this area. The concentration would not likely to have generated unacceptable risk based upon the 2001 data. However, this **data may not be suitable** for use in vapor intrusion evaluations as it was collected at the point of refusal. This is likely considerably below the water table and the report does not speak to the relationship of the collected water sample and the top of the water table, where groundwater samples to be used for vapor intrusion evaluations should be collected. There is no new data for this area. This is a significant data gap.

## GROUNDWATER

Highest concentrations of VOCs are in the bedrock wells. BSOSMW01 (off post) has concentrations of Total VOCs of 25,435 µg/L with TCE concentrations of 13,000D µg/L which exceeds the rule of thumb for the presence of DNAPL. The groundwater contamination has not been fully delineated. This is a significant data gap. Based upon a preliminary evaluation, the extraction wells are screened 50' to 70' too shallow to effectively capture the highest VOC concentrations. However, this summary is not a complete evaluation of the performance of the pump and treat system. Deeper extraction wells will be needed. Additional topics to be considered are the capture zones for the individual wells and in turn the entire system as well as potential remedial actions to capture/remediate the plume beyond the current pump and treat system. Domestic well Barnett has TCE at 340 µg/L and 1,2-cis DCE at 3500 µg/L in a 2001 report. Although many private users were connected to municipal water supply in 2000-2001, at this time, it is unknown whether there are any current private wells users in the plume areas. Use of groundwater in the plume area could result in significant risk.

## SURFACE WATER

A creek flowing south of the post boundary has been sampled this year as well as historically. The most recent data indicate detections of 1,1,2,2-TeCA, TCE and lead which exceed GWQC/NRWQC screening criteria in five locations. These locations are the further from the post which fits the conceptual model. The highest concentration is found at location FTG09-WS-SW4 of 19 µg/L of 1,1,2,2-TeCA which has a screening criteria of 0.17 µg/L. This detection is two orders of magnitude above the screening criteria. Historically VOCs have been detected in nearby Joy Lake but it was not sampled this time. Due to the results, the Army is proposing to post warning signs along the creek. Historical analytical samples of the surface water from Joy Lake have shown VOC contamination. The current concentrations in Joy Lake are unknown.



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**FIG01 Data Summary (north side of the post)**

FIG01 Vapor Intrusion Risk derived from groundwater data, 3<sup>rd</sup> Quarter Performance Report, December 2012, concentrations in µg/L

VI risk calculator used found at [http://www.epa.gov/athens/learn2model/part-two/onsite/jne\\_lite\\_forward.html](http://www.epa.gov/athens/learn2model/part-two/onsite/jne_lite_forward.html) Avg Temp 71.6°

In this area, at an average depth of 13.6', for a TCE concentration of 17 µg/L, risk is 1e-4. For 1,1,2,2-TeCA concentration of 785 µg/L, risk is 1e-

Well Name	Depth to Water	1,1,2,2-TeCA conc	1,1,2,2-TeCA risk/HQ	TCE conc	TCE risk/HQ	cis-DCE conc	cis-DCE risk/HQ	Vinyl Chloride conc	Vinyl chloride risk/HQ	Cumulative risk	Cumulative HQ
NLOSPZ003	11.7	162	2.1e-5 /0.004	160	1.0e-3 /0.6	32.9	0/0.05	0.28	5.7e-7/ 0.001	1.0e-3	0.6
NLOSPZ007	5.7	199.56	3.1e-5/ 0.006	110	7.7e-4/ 0.43	24	0/0.04	ND	--	8.0e-4	0.47
NLOS-MW06	16.6	3.6	4.3e-7/8e-5	170	9.9e-4 /0.55	36	0/0.05	ND	--	9.9e-4	0.55
NLOS-MW12	20.4	0.2	2e-8/4e-6	70.1	3.9e-4 /0.2	37.6	0/0.05	ND	--	3.9e-4	0.2

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The largest portion of the risk is due to TCE. The majority of the plume coverage is on post but extends in two residential areas to the north and northwest. There are four monitoring wells which are suitable (shallow enough with high enough VOC concentrations) for vapor intrusion evaluation.

## GROUNDWATER

There are two plumes, one flowing to the north off post (FTG-01(OU-A)) and one flowing to the northeast off post(FTG-01(UB)) emanating from different on post sources. The highest concentrations of VOCs are in the bedrock wells. NLA-MW45D (on post) has concentrations of Total VOCs of 5,060 µg/L with TCE concentrations of 2,240 µg/L. The groundwater contamination has not been fully delineated. This is a significant data gap. There are two extraction systems; one for the north plume and one for the northeast plume. Based upon a preliminary evaluation, the extraction wells are screened at the proper depth to effectively capture the highest VOC concentrations. As seen on the potentiometric surface map, the extraction system for the northwest plume has more drawdown and therefore may be capturing more of its plume. The north plume

extraction system does not appear to be impacting much of an impact on groundwater system as seen on the potentiometric surface map. However, this summary is not a complete evaluation of the performance of the pump and treat system. Deeper extraction wells may be needed. Additional age 5 of 9



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topics to be considered are the capture zones for the individual wells and in turn the entire system as well as potential remedial actions to capture/remediate the plume beyond the current pump and treat system.

## SURFACE WATER

There are three watershed associated with the northern post boundary. The eastern watershed has detections of 1,1,2,2-TeCA and lead. The central watershed has detections of arsenic and zinc with limited VOC detections. The western watershed has numerous low VOC detections and one detection of lead. Due to the results, the Army is proposing to post warning signs along the creeks.

## FTG-09 SOIL GAS STUDY

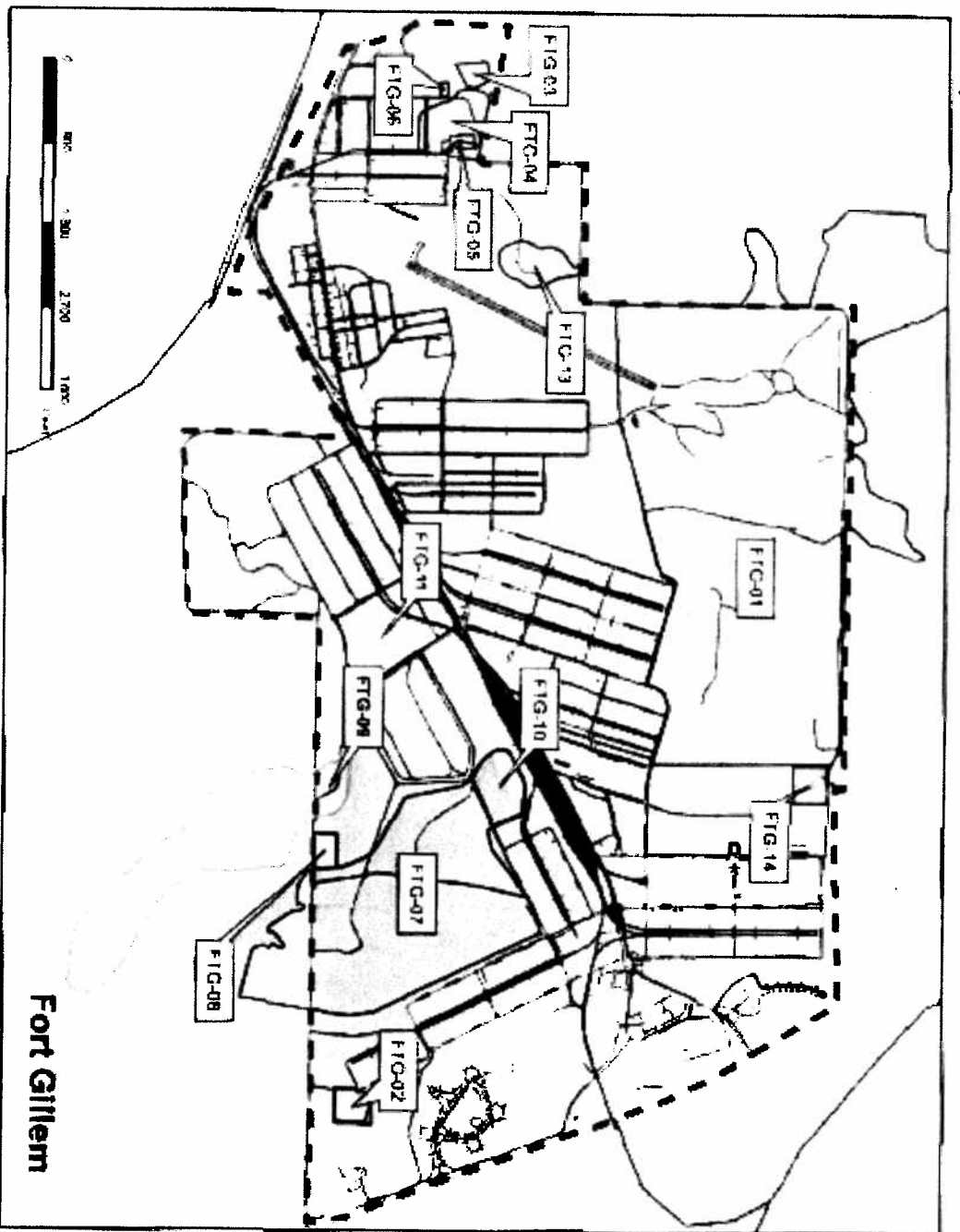
In the fall of 2004, 86 soil gas samples were collected from the residential area south of the post in the FTG-09 area. Using the maximum analytical data points for the VOCs detected, the Vapor Intrusion Screening Calculator Excel sheet was used to estimate the risk. Three compounds have notable risk. TCE with risk at  $8.3\text{e-}5/\text{HQ}=17$ , which is in excess of the benchmark of  $\text{HQ}=1$ , chloroform with risk at  $2.0\text{e-}5/\text{HQ}=0.02$  and PCE with risk at  $1.4\text{e-}6/\text{HQ}=0.31$ . This 2004 report worked through the screening tables included in the 2002 VI Guidance. These recent calculations were made with the 2012 screening calculator which has updated toxicity values for compounds. It is notable that while the total risk for this study is less than  $1\text{e-}4$  because none of the maximums were co-located, the risks were generally less than the corresponding risks derived from the 2012 groundwater data. Additionally, this study did not include analytical results for 1,1,2,2-TeCA which exhibited risk in other studies both groundwater and soil gas.

There was an onsite passive soil gas study performed in 1995 (ESI of the SE Burial Sites, 1996). There were numerous detections of aromatic and chlorinated VOCs from the 840 locations. These samples were collected from the south central area of the post. According to the report of the activities, the pattern of detections, "in general, did not conform to the disposal areas previously identified by Fort Gillem staff, or to areas mapped as possible debris disposal areas using geophysical techniques." The map of those detections is included at the end of this summary. Notable is that those detections are seen directly adjacent to the southern boundary fence, directly opposite residential areas and those detections have been known for 18 years at this point. There is some question about the usability of the data. These data were collected using a passive method where sample bottles with activated charcoal lines the bottom of the bottle and these bottles are inverted and buried approximately 18" below ground. The results are reported in "ppm". Passive soil gas results of the time were usually reported as a flux measurement; units of mass/units of area/units of time. Modern units are ppm per volume or  $\text{ug}/\text{m}^3$ . It is best that these data be used as a screening tool comparing data at one point to data at adjacent points in a relative concentrations evaluation rather than used for risk assessment calculations. It may be concluded that there are several potential source or disposal areas noted within the study area which need to be evaluated.

## GENERAL SITE MAP



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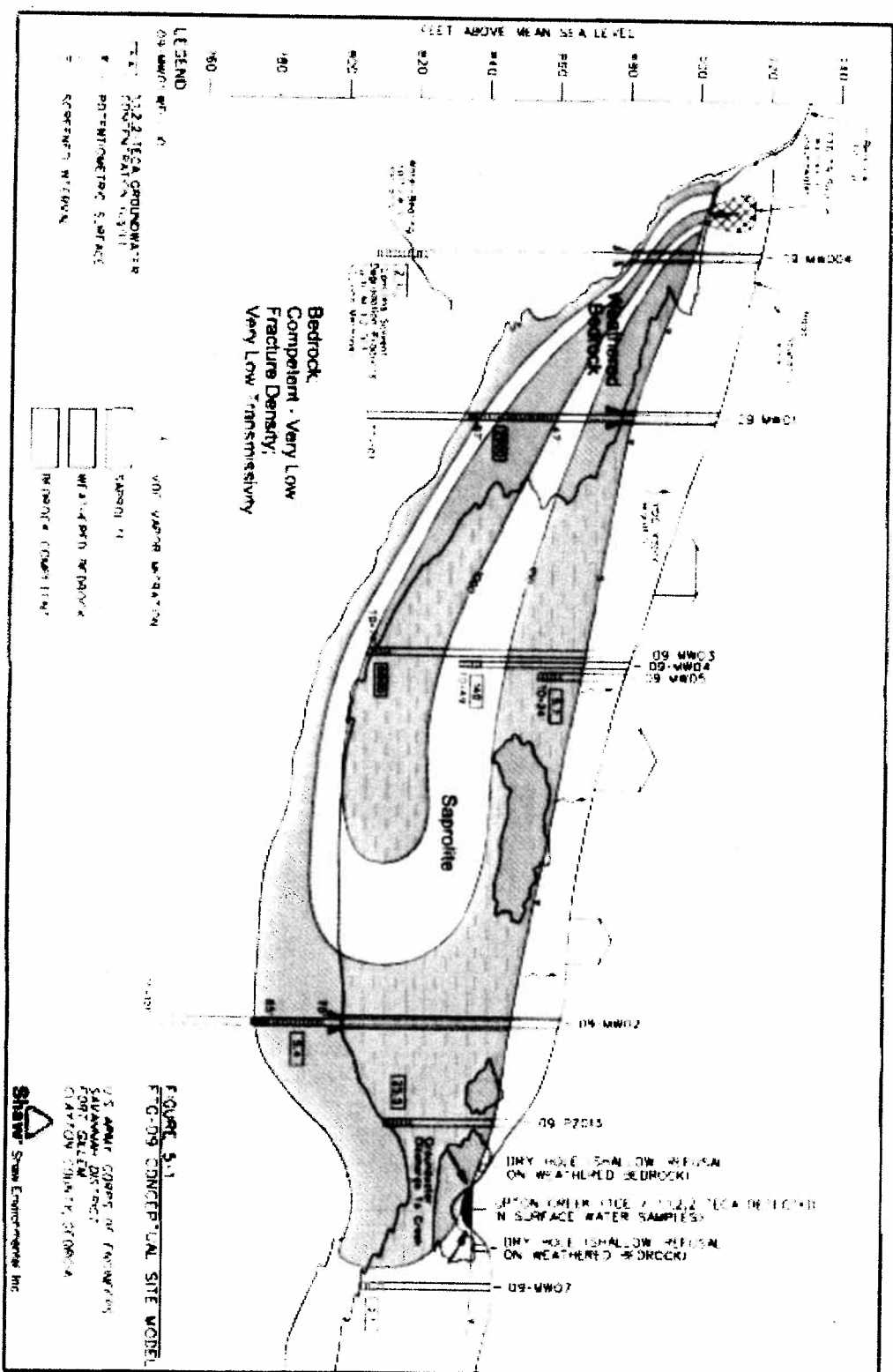




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This model is suitable for this summary.





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 1995 ONPOST PASSIVE SOIL GAS SURVEY RESULTS

